REMARKS

Claims 1-21 are pending. Claim 11 has been withdrawn from consideration as being drawn to a non-elected claim. Claims 1-10 and 12-21 are currently rejected. Claims 5, 12, 13, 15 and 20 have been canceled, without prejudice. Claims 1, 6 and 19 have been amended as described below. No new matter enters the case as a result of these amendments.

The Office Action has rejected claims 1-4, 7-10, 12-13, 15 and 16 under 35 U.S.C. §102(b) as allegedly being anticipated by Chen et al. et al. (WO 02/02279). The Office Action refers to Figures 8-9 and page 14 without further explanation.

Applicants respectfully disagree. Claim 1 has been amended to bring in the limitation of void volume, previously of claim 5. To be anticipatory, a single source must disclose all of the claimed elements "arranged as in the claim". *Richardson v. Suzuki Motor Co.*, 868 F 2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989). Chen teaches a grooved polishing pad for polishing a workpiece. The pad of Chen et al. has grooves on the polishing side and may have grooves on the backside (non-polishing side). Chen et al. teaches that the grooves on the backside of the pad can communicate with the grooves on the polishing side of the pad through one or more openings. Chen et al. is silent to void volume or the number, width, depth and orientation of the first and second set of grooves. Therefore, Chen et al. cannot be anticipatory to claim 1, or the dependent claims thereof, as it does not disclose all of the claimed elements arranged as in the present claims.

The Office Action has rejected claims 5, 6 and 14 under 35 U.S.C. 103(a) as allegedly being unpatentable over Chen et al. (WO 02/02279). The Office Action states that Chen does not explicitly disclose a specific void volume, or a specific average groove width or the first or second, or combination of first and second grooves. The Office Action further states that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided '279 with the desired groove width, because discovering the optimum or workable ranges involves only routine skill in the art.

The applicants respectfully disagree. "The mere fact that the prior art could be so modified [to produce the claimed device] would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). "The showing of motivation to combine must be

Cabot Microelectronics Corporation
870 North Commons Drive
Aurora, IL, 60504
Tel. (630) 375-5465

clear and particular, and it must be supported by actual evidence." *Teleflex, Inc. v. Ficosa North American Corp.*, 299 F.3d 1313, 63 USPQ2d 1374 (Fed. Cir. 2002). The pad taught by Chen et al. is optimized for chemical-mechanical polishing. The Chen et al patent teaches cutting grooves in the backside of the pad to increase flexibility (page 6, lines 3-6). Further the Chen et al. patent teaches that the grooves on the backside of the pad can communicate with the grooves on the polishing through one or more openings to relieve wafer suction (page 14, lines 21-23). The pad of the present invention was optimized for electrochemical-mechanical polishing (eCMP). The present invention teaches a pad having high void volume so as to maximize flow of the electrolyte through the polishing pad (paragraph **[0030]**). Additionally, the present invention teaches the number, width, depth, and orientation of the first and second sets of grooves are optimized to produce a uniform flow of electrolyte throughout each of the x, y, and z directions of the polishing pads. The process of eCMP requires a high flow of electrolyte to maintain conductivity. This is contrary to the requirements of CMP, where excess slurry consumption increases costs of production and is undesirable. The pad of Chen et al and the pad of the present invention were optimized for separate applications. The teachings of Chen et al. do not provide motivation, suggestion or incentive to arrive at the claimed instant invention because the Chen et al patent teaches away from the present invention. The Chen et al pad is optimized for slurry distribution and not for maximizing the flow of electrolyte. For at least the reasons stated above, the applicants respectfully request that the rejections under 35 U.S.C. §103(a) be withdrawn.

Claims 18-21 are rejected under 35 U.S.C. §103(a) as allegedly being obvious over Chen et al. in view of Wadensweiler et al. (US 6,841,057). The Office Action states that Chen et al does not disclose that the polishing pad comprises abrasive, or that the polishing pad is conductive, comprising conductive elements or a conductive polymer. The Office Action further states that the '057 reference teaches that it is known to make polishing pads abrasive, that when used with a polishing medium, facilitates material removed from the substrate. The Office Action further states that it is old and well known to make a polishing pad conductive. The Office Action asserts that it would have been obvious to one of skill in the art to have made the Chen et al pad conductive through the use of conductive polymer or conductive elements

Cabot Microelectronics Corporation
870 North Commons Drive
Aurora, IL, 60504
Tel. (630) 375-5465

The Applicants respectfully disagree. To expedite prosecution of this application, claim 20 has been canceled, without prejudice. Claim 19 has been amended to particularly point out that the body of the polishing pad is conductive. Support for this amendment is found in the original specification, for example at paragraph [0036].

The '057 patent teaches an apparatus for polishing a substrate comprising a conductive polishing pad. The '057 patent does not teach that the body of the polishing pad is conductive. In fact, the '057 teaches that the body of the polishing pad is generally made of a dielectric material (column 7, lines 60-61). Therefore, the '057 patent teaches away from a polishing pad wherein the body is conductive. The Office Action has referenced column 17, lines 44-60 as providing teaching of abrasives contained in the body of the polishing pad. The reference, however, describes a polishing station wherein the polishing pad is part of a chemical-mechanical polishing station, not electrochemical-mechanical polishing. Therefore, the '057 patent does not provide suggestion or motivation to modify the Chen et al. patent to arrive at a polishing pad optimized for electrochemical polishing, such as the pad of the in the present invention, having about 30% void volume and wherein the body is conductive or comprises abrasive particles. For at least the reasons listed above, the applicant respectfully requests that the rejections to claims 18-21 under 35 U.S.C. §103(a) be withdrawn.

The Office Action stated that claim 17 was rejected, but provided no specifics for the rejection. Applicants assert that claim 17, as well as all pending claims, are in good and proper condition for allowance. Applicants respectfully request that the application be passed to issue.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at the number listed.

Respectfully submitted,

By Thomas Omholt

Thomas Omholt
Reg. No. 37,052
(630) 375-2033

Cabot Microelectronics Corporation
870 North Commons Drive
Aurora, IL, 60504
Tel. (630) 375-5465